

CLAIMS

- 5 1. A nucleotide sequence shown as SEQ I.D. No:1 wherein the expression product of the nucleotide sequence has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.
- 10 2. A derivative, fragment, variant or homologue of the nucleotide sequence shown as SEQ I.D. No:1, wherein the expression product of the nucleotide sequence has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.
- 15 3. A homologue according to claim 2 wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.
- 20 4. A mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof, wherein the expression product of the mutant nucleotide sequence has the capability of substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.
- 25 5. A method of medical treatment comprising the step of administering a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof.
6. A method of medical treatment according to claim 5 wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.
- 30 7. A method of medical treatment comprising the step of administering a mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof.
8. A method of affecting the growth behaviour of cells comprising the step of administering the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof to the cells.

9. A method of affecting the growth behaviour of cells according to claim 8, wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.

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10. A method of affecting the growth behaviour of cells comprising the step of administering a mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof to the cells.

10 11. Use of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.

15 12. The use according to claim 11, wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.

13. Use of a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.

20 14. An assay comprising contacting an agent with a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the nucleotide sequence or the expression product with the G β .

25 15. An assay according to claim 14 wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.

30 16. An assay comprising contacting an agent with a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression

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product thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the mutant nucleotide sequence or the expression product with the G β .

- 5 17. A kit comprising a nucleotide sequence shown as SEQ. I.D. No: 1 or a derivative, fragment, variant or homologue thereof or the expression product thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.
- 10 18. A kit according to claim 17 comprising a homologue of SEQ. I.D. No: 1, wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.
- 15 19. A kit comprising a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.
- 20 20. A protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof, wherein the protein has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated with the Cdc24p or the homologue thereof.
- 25 21. A fragment of the protein sequence shown as SEQ. I.D. No: 2 according to claim 20 wherein the fragment is the 19 amino acid Cdc24 fragment SEQ. I.D. No: 21 or the 19 amino acid Dbl fragment SEQ. I.D. No: 22.
22. A homologue of the protein sequence according to claim 20, wherein the homologue is the C. albicans Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 30 23. A mutant of the protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof, wherein the mutant protein has the capability of substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated with the Cdc24p or the homologue thereof.

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24. The mutant according to claim 23 wherein the mutant is the *S.cerevisiae* Cdc24-m1 mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 mutant (SEQ. I.D. No: 6) and the *S.cerevisiae* Cdc24-m3 mutant (SEQ. I.D. No: 8)

5 25. A method of medical treatment comprising the step of administering a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof.

10 26. A method according to claim 25 comprising the step of administering a fragment of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is the 19 amino acid Cdc24 fragment SEQ. I.D. No: 21.

15 27. A method according to claim 25 comprising the step of administering a homologue of the protein sequence shown as SEQ I.D. No:2, wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.

20 28. A method of medical treatment comprising the step of administering a mutant of the protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof for use in medicine.

25 29. A method according to claim 28 wherein the mutant is selected from the group comprising *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).

30 30. A method according to claim 28 wherein the method comprises the step of administering a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is selected from the group comprising the *S.cerevisiae* Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the *S.cerevisiae* Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the *S. cerevisiae* Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).

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31. A method of modulating the growth behaviour of cells comprising the step of administering a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof.
- 5 32. A method according to claim 31 comprising the step of administering a fragment of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is the 19 amino acid *S. cerevisiae* Cdc24 fragment SEQ. I.D. No: 21.
- 10 33. A method according to claim 31 comprising the step of administering a homologue of the protein sequence shown as SEQ I.D. No:2, wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 15 34. A method of modulating the growth behaviour of cells comprising the step of administering a mutant of the protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof for use in medicine.
- 20 35. A method according to claim 31 wherein the mutant is selected from the group comprising the *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).
- 25 36. A method according to claim 31 wherein the method comprises the step of administering a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is selected from the group comprising the *S.cerevisiae* Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the *S.cerevisiae* Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the *S. cerevisiae* Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).
- 30 37. Use of a protein sequence shown as SEQ I.D. No: 2 or a derivative, fragment, variant or homologue thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.

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38. The use according to claim 37 wherein a homologue of the protein sequence shown as SEQ I.D. No: 2 is used and wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34

5 39. Use of a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.

10 40. The use according to claim 39 wherein the mutant is selected from the group comprising the *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).

15 41. An assay comprising contacting an agent with a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the protein sequence with the G β or the Rho-family GTPase.

20 42. An assay according to claim 41 wherein the agent is contacted with a homologue of the protein sequence shown as SEQ. I.D. No: 2, said homologue being the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.

25 43. An assay comprising contacting an agent with a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in the presence of G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the mutant protein sequence with the G β or the Rho-family GTPase.

30 44. An assay according to claim 43 wherein the mutant is selected from the group comprising *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-

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m2 76 amino acid mutant (SEQ. I.D. No: 6) and the S. cerevisiae Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).

45. An assay according to claim 43 wherein the assay comprises contacting an agent with a
5 fragment of a mutant of the protein sequence shown as SEQ I.D. No:2 and wherein the
fragment is selected from the group comprising the S.cerevisiae Cdc24-m1 mutant 19
amino acid fragment (SEQ. I.D. No: 18), the S.cerevisiae Cdc24-m2 mutant 19 amino acid
fragment (SEQ. I.D. No: 19) and the S. cerevisiae Cdc24-m3 mutant 19 amino acid
fragment (SEQ. I.D. No: 20).

10 46. A kit comprising a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment,
variant or homologue thereof; and a G β capable of being associated with Cdc24p or a
homologue thereof.

15 47. A kit according to claim 46 wherein the kit comprises a homologue of the protein
sequence shown as SEQ. I.D. No: 2, said homologue being the C. albicans Cdc24 76
amino acid fragment SEQ. I.D. No: 34.

20 48. A kit comprising a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative,
fragment, variant or homologue thereof; and a G β capable of being associated with
Cdc24p or a homologue thereof.

25 49. A kit according to claim 48 wherein the mutant is selected from the group comprising
S.cerevisiae Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the S.cerevisiae Cdc24-
m2 76 amino acid mutant (SEQ. I.D. No: 6) and the S. cerevisiae Cdc24-m3 76 amino
acid mutant (SEQ. I.D. No: 8).

30 50. A kit according to claim 48 wherein the kit comprises a fragment of a mutant of the
protein sequence shown as SEQ I.D. No:2 and wherein the fragment is selected from the
group comprising the S.cerevisiae Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D.
No: 18), the S.cerevisiae Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19)
and the S. cerevisiae Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).

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51. A GEF capable of interacting with a G β such that the interaction provides a connection between G protein coupled receptor activation and polarised cell growth.

52. An agent capable of affecting a GEF/G β interaction, which interaction provides a connection between G protein coupled receptor activation and polarised cell growth.

53. An assay method comprising the use of the sequence presented in SEQ ID No 4 or a nucleotide sequence coding for same

10 54. Use of an agent identified by the assay of any one of claims 14, 16, 41, 43 in a method of modulating cell growth.

55. A method of medical treatment according to claim 5, wherein the method is for treatment of fungal infection.

15 56. A method of medical treatment according to claim 6, wherein the method is for treatment of fungal infection.

57. A method of medical treatment according to claim 7, wherein the method is for treatment of fungal infection.

20 58. A method of medical treatment according to claim 25, wherein the method is for treatment of fungal infection.

25 59. A method of medical treatment according to claim 26, wherein the method is for treatment of fungal infection.

60. A method of medical treatment according to claim 27, wherein the method is for treatment of fungal infection.

30 61. A method of medical treatment according to claim 28, wherein the method is for treatment of fungal infection.

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62. A method of medical treatment according to claim 29, wherein the method is for treatment of fungal infection.

63. A method of medical treatment according to claim 30, wherein the method is for treatment 5 of fungal infection.

64. A mutant of a STE4 nucleotide sequence (SEQ I.D. No:10) or a derivative, fragment, variant or homologue thereof, wherein the expression product of the mutant nucleotide sequence has the capability of substantially affecting the interaction of G β with Cdc24p or a 10 homologue thereof that is usually capable of being associated therewith.

65. The mutant, derivative, fragment, variant or homologue thereof according to claim 64, wherein the mutant is SEQ. I.D. No: 12 or SEQ. I.D. No: 14.